

**REMARKS**

**Formalities**

As noted in the Remarks section of the Amendment filed on March 20, 2007, the Examiner attached a signed copy of the PTO-Form 1449 submitted with Applicants' Information Disclosure Statement (IDS) of May 27, 2004 to the Non-Final Office Action dated December 21, 2006. However, the Examiner indicated that the references were not in conformance and were not considered by crossing out each reference listed on the PTO-Form 1449. In a telephone conversation on January 16, 2007, the Examiner stated that he did not have a copy of the second page of the IDS, on which Applicants stated that the references are discussed within the specification. However, this page is available on public PAIR, and therefore should be accessible to the Examiner. Applicants again respectfully request that the Examiner indicate consideration of the references listed on the PTO-Form 1449 in the next Office Action.

**Claim Rejections Under 35 U.S.C. § 102(e) - Hoshida**

Claims 1-5 and 8-11 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent Application No. 2002/0044324 to Hoshida et al. (hereinafter "Hoshida"). Applicants respectfully traverse these grounds of rejection.

**Independent Claim 1**

Independent claim 1 recites, *inter alia*, an optical transmission system comprising "a plurality of repeaters, each of which has an optical amplifier and a plurality of pumping light sources, and outputs a pumping light with a different pumping wavelength spectrum to achieve a different gain spectrum," wherein the repeaters are located in a predetermined gain control zone.

Applicants submit that Hoshida does not teach or suggest this feature of claim 1. As discussed in the Remarks section of the Amendment filed on March 20, 2007, Fig. 1 of Hoshida shows that repeater stations 14-3, 14-4, ... 14-m each include two pump light sources 21-n and 21-n+1 (§ [0060]). However, repeater stations 14-1 and 14-2 only contain one pump light source each, and 14-m+1 does not contain any pump light sources (§ [0060]). Further, only repeater stations 14-1, 14-2, 14-3, and 14-m+1 contain an optical signal processing part 24-1, 24-2, 24-3, and 24-k, respectively (§ [0064]). Each optical signal processing part 24-1, 24-2, 24-3, and 24-k contains an optical amplifier (§ [0064]). However, repeater station 14-m does not contain an optical signal processing part with an optical amplifier (§ [0068]). Therefore, Hoshida does not teach or suggest a gain control zone in which each repeater has an optical amplifier and a plurality of pumping light sources, and outputs a pumping light with a different pumping wavelength spectrum to achieve a different gain spectrum, as recited in claim 1.

In the current Final Office Action, the Examiner maintains that Fig. 19 of Hoshida shows two repeaters, both of which include optical amplification and a plurality of light pumping sources. Applicants respectfully disagree. Fig. 19 shows that each repeater station 304 includes a band detecting part 315, two WDM couplers 316 and 318, two optical amplifiers 317-C and 317-L, and a forward pumping part 314 (§ [0381]). Fig. 20 shows that the forward pumping part 314 includes only a single light source 332 (§ [0388]), not a plurality of light pumping sources, as recited in claim 1.

Applicants submit that claim 1 is patentable over Hoshida at least by virtue of the aforementioned differences, as well as for its additionally recited features. Further, claims 2-5

are dependent from claim 1. Therefore, claims 2-5 distinguish over Hoshida for at least the reasons given above with respect to claim 1. These claims further distinguish over Hoshida by reason of the additional limitations set forth therein.

Independent Claim 8

Independent claim 8 recites, *inter alia*, an optical transmission system with a plurality of optical amplifier repeaters and a gain control device. The gain control device includes a power adjustment instruction section for “instructing an optical amplifier repeater ... from among the plural optical amplifier repeaters to adjust the power of the optical amplifier repeater.”

Applicants are amending claim 8 to further specify that “the gain control device is located within a device that is separate from the instructed optical amplifier repeater” (emphasis added).

Applicants submit that Hoshida does not teach or suggest this feature of claim 8. On the contrary, the optical communication system of Hoshida includes a plurality of repeater stations 54, some of which contain a backward pumping part 63 that has a band adjusting part 73 (¶¶ [0112] - [0115]; see Fig. 5). For each repeater station 54 with a backward pumping part 63, the band adjusting part 73 adjusts the output power of the pump light source 71 so that the output power falls within a predetermined range (¶¶ [0119], [0124]). However, the band adjusting part 73 within a particular repeater station 54 cannot instruct any of the other repeater stations 54 to adjust their output power, as required by claim 8. Therefore, Applicants submit that claim 8 is patentable over Hoshida at least by virtue of the aforementioned differences, as well as for its additionally recited features.

Further, claims 9-11 are dependent from claim 8. Therefore, claims 9-11 distinguish over Hoshida for at least the reasons given above with respect to claim 8. These claims further distinguish over Hoshida by reason of the additional limitations set forth therein.

**Claim Rejections Under 35 U.S.C. § 103(a) - Hoshida in view of Kagi**

Claims 6 and 7 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hoshida in view of U.S. Patent Application No. 2002/0054733 to Kagi et al. (hereinafter "Kagi"). Applicants respectfully traverse this ground of rejection.

As discussed above, Hoshida does not teach or suggest a gain control zone in which each repeater has an optical amplifier and a plurality of pumping light sources, and outputs a pumping light with a different pumping wavelength spectrum to achieve a different gain spectrum, as recited in claim 1. Further, Kagi fails to remedy this deficiency in Hoshida. Therefore, Applicants submit that claims 6 and 7 are patentable over Hoshida and Kagi, at least by virtue of the aforementioned differences, as well as their additionally recited features.

**Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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